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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,035	07/25/2003	Steven J. Barber	020569-01900	3349

22904 7590 09/27/2004

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EXAMINER

RIDDLE, KYLE M

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,035

Applicant(s)

BARBER ET AL.

Examiner

Kyle M. Riddle

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 12, 14, 16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 4-6, 8-11, 13, 15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT-Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7, 12, 14, 16, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (U.S. Patent 5,388,960) in view of Chen et al. (U.S. Patent 6,487,863).

Re claims 1, 7, 12, 14, 16, and 18, Suzuki et al. disclose an apparatus for cooling a steam turbine using forced air comprising:

- shutting down the steam to the turbine before cooling begins (column 1, lines 56-62);
- introducing charged cooling air in a controlled means to detect and control the flow rate to prevent damage to the turbine (column 3, lines 62-67, column 4, lines 20-37);
- stopping the forced-air cooling when desired cooling temperatures are achieved (column 9, lines 61-68 with column 10, lines 1-4);
- a main steam inlet port 12a (column 7, lines 13-14);
- a main outlet portion 12b connected to cooling air discharge valve 26 (cold reheat line) connected to reheater B (column 1, lines 52-55 and Figures 2, 7-9, and 11);

Art Unit: 3748

- a control unit with control sections 29, 30, and 32 for controlling the forced-air cooling flow rate preventing damage to the turbine (column 8, lines 15-16, lines 36-38, lines 58-68 with column 9, lines 1-4, lines 56-60).

Re claim 2, Suzuki et al. disclose the normal flow of steam through main steam inlet portions 12a and then through main outlet portion 12b to cooling air discharge valve 26 (cold reheat line) into reheater B (column 1, lines 42-54 and Figures 2, 7-9, and 11), and the flow of forced-air goes through the main steam inlet port 12a to the cooling air discharge valve 26 (column 7, lines 13-21 and Figure 2).

Re claim 3, Suzuki et al. disclose introducing forced air into cooling air discharge valve 26 and through main steam inlet portions 12a and inlet ports 20a, 21a (column 10, lines 45-53 and Figure 7).

Re claim 19, Suzuki et al. disclose reducing the temperature to range for dismantling (column 10, lines 13-16 and Figure 6).

Re claim 20, Suzuki et al. disclose a shortened period of cooling the turbine reducing downtime (column 1, lines 56-64, column 3, lines 61-67, and Figure 6).

Suzuki et al., however, fail to disclose the use of nitrogen for the cooling process.

Chen et al. teach a method of cooling high temperature components of a turbine by supplying nitrogen in lieu of compressed air to cool the heated components using controlled temperature ranges (column 2, lines 64-67 with column 3, lines 1-24). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Chen et al. in the apparatus of Suzuki et al., since the use thereof would have provided enhanced cooling due to the lower temperature of nitrogen versus forced air, and

Art Unit: 3748

the inert property of nitrogen being more beneficial to the metal of the turbine components to reduce the possibility of high temperature chemical reactions such as oxidation.

Allowable Subject Matter

3. Claims 4-6, 8-11, 13, 15, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments filed 21 July 2004 have been fully considered but they are not persuasive.

5. Applicant's argue on page 4, last paragraph, continuing on the top of page 5, that Suzuki does not teach the use of nitrogen in the cooling process and that air cooling is inadequate, and modifying Suzuki with the teaching of Chen to use nitrogen for the cooling process (middle of page 5) would not be obvious. Examiner disagrees. Suzuki substantially shows all the claimed method steps and components for cooling a steam turbine (see above). Though Chen specifically discloses a gas turbine, the high temperature components thereof are substantially the same as those of a steam turbine to one of ordinary skill in the art, and since Chen uses nitrogen to cool these components in much the same manner as Suzuki uses air to cool similar components, it would be obvious to combine the teaching of Chen by adding nitrogen to the cooling system of Suzuki when necessarily motivated to cool the components at higher speeds while maintaining safety limits.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

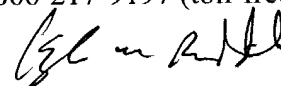
Communication

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409, and effective 22 November 2004 will be (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859 effective 22 November 2004. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle
Examiner
Art Unit 3748

kmr



THOMAS DENION
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